

SN 09/824,074

Please rewrite the paragraph beginning on page 3, line 19 as follows:

A<sup>2</sup> "In use, the controller 2 is set to deliver a gradually increasing voltage across the driver 4. This has the effect of gradually increasing the stroke length of the piston 5. Should the end of the piston 5 strike an end plate at either end 6, 7 of the pump cylinder 1, this is detected by the vibration sensor 3 which generates a signal which is transmitted to the controller 2. Receipt of the signal from the vibration sensor 3 then causes the controller 2 to reduce the drive voltage to the driver 4."

Please rewrite the paragraph beginning on page 3, line 26 as follows:

A<sup>3</sup> "In the above described embodiment, the piston 5 is driven by a closed loop control system which includes a vibration sensor 3, a variable driver 4 and a controller 2 which is used to analyze the sensor output from the vibration sensor 3 to determine the drive voltage."

Please rewrite the paragraph beginning on page 3, line 30 as follows:

A<sup>4</sup> "The vibration sensor 3 is effectively used to maximize the piston stroke by sensing any end point engagement of the piston 5 on the pump cylinder 1 and thereby avoid over driving the pump. The vibration sensor 3 is able to detect collision at either end 6, 7 of the pump cylinder 1, therefore the maximum stroke is achieved independent of any offsets in the system."

Please rewrite the paragraph beginning on page 4, line 16 as follows:

A<sup>5</sup> "- the vibration sensor 3 is not intrusive to the pump cylinder 1 and preferably mounted to an exterior of the pump cylinder 1 as shown in the Figure and therefore, not vulnerable to contamination or corrosive action."

#### In the Drawing

Reference numerals 6 and 7 for "opposed ends" of the pump cylinder have been added to the drawing, as shown in the enclosed corrected drawing.

#### In the Claims

Please rewrite claim 1 to read as follows:

- A<sup>6</sup>
1. (Amended) An apparatus, comprising:  
a cylinder having opposed ends;  
a piston disposed for reciprocating movement between the opposed ends of the cylinder;  
drive means connected to the piston for providing the reciprocating movement of the piston;  
sensor means in communication with said cylinder for sensing any contact of said piston and said opposed ends, and generating a contact signal representing said contact.

15-Nov-02

2

P.05/13 908 771 6159

BOC PATENT MURRAY HILL

NOV-15-2002 16:21